



SOLID STATE MICROWAVE

SD1409

THOMSON-CSF COMPONENTS CORPORATION

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800 MHz COMMUNICATIONS TRANSISTOR

DESCRIPTION

The SD1409 transistor is a common base silicon epitaxial planar transistor, that was specifically designed for amplifier applications in the 800-870 MHz Mobile Frequency Band. This device offers optimum gain over the entire frequency band.

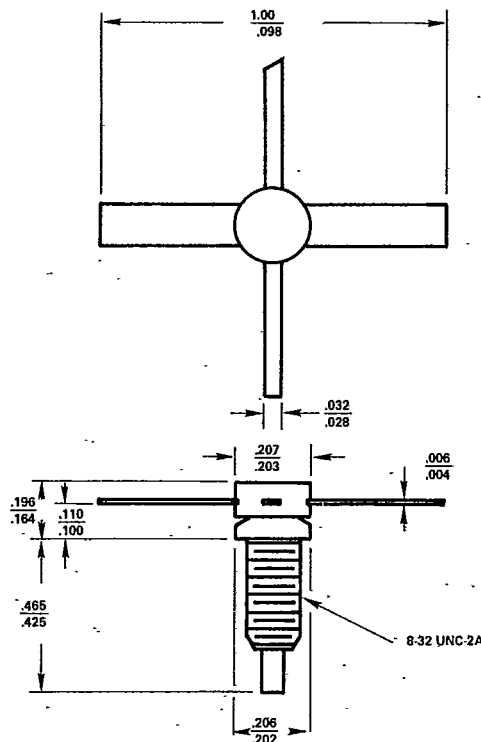
FEATURES

- Greater than 8.0 dB gain at 2.0 W output at 870 MHz
- Stripline stud package
- State-of-the-art 800 MHz geometry
- Infinite VSWR at rated operating conditions
- Common base structure

ABSOLUTE MAX. RATING

V_{CB0}	: Collector-Base Voltage	36.0 V
V_{CEO}	: Collector-Emitter Voltage	16.0 V
V_{EBO}	: Emitter-Base Voltage	4.0 V
I_C	: Collector Current (max.)	0.6 A
PT.	: Total Device Dissipation @ 25°C	8.75 W
θ_{jc}	: Thermal Resistance	20.0° C/W
T_j	: Junction Temperature	200°C
T_s	: Storage Temperature	-65°C to +200°C

ELECTRICAL CHARACTERISTICS



Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage*	BV_{CEO}	$I_C = 10 \text{ mA}, I_b = 0$	16.0	—	—	V_{dc}
Collector-Emitter Breakdown Voltage*	BV_{CES}	$I_C = 10 \text{ mA}, V_{be} = 0$	36.0	—	—	V_{dc}
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_C = 5 \text{ mA}, I_e = 0$	4.0	—	—	V_{dc}
Collector Cut Off Current	I_{CBO}	$V_{cb} = 12.5 \text{ V}, I_e = 0$	—	—	1.0	mA
DC Current Gain	h_{FE}	$V_{ce} = 5 \text{ V}, I_C = 150 \text{ mA}$	20.0	—	—	—

*Pulsed through 25 MH Inductor

RF CHARACTERISTICS: SMALL SIGNAL

Output Capacitance	C_{ob}	$V_{cb} = 12.5 \text{ V}, I_C = 0, F_o = 1.0 \text{ MHz}$	—	—	7.5	pF
Input Capacitance	C_{ib}	$V_{eb} = 0.5 \text{ V}, I_C = 0, F_o = 1.0 \text{ MHz}$	—	16.5	—	pF

RF CHARACTERISTICS: LARGE SIGNAL

Amplifier Power Output	P_o	870 MHz, 12.5 V	2.0	—	—	Watts
Amplifier Power Gain	P_g		8.0	—	—	dB
Impedance Input	Z_s	870 MHz, 12.5 V	2.97 - J 13.8 (Typ.)		—	ohms
Impedance Output	Z_{cl}		6.6 + J 4.3 (Typ.)		—	ohms

@ $P_{OUT} = 2.0 \text{ W}$



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SD --- 01409-X